

*Notices*, vol. xl. p. 440) been employed, the residuals of that place would have been small and numerically about equal, but affected with different signs, showing that the thread of light was very fine and of nearly the same breadth at both observed internal contacts. In conclusion I may remark that the definition was good at both contacts, and that the contacts themselves were observed under the same conditions as regard aperture and magnifying power.

*Windsor, N. S. Wales :*  
1883, Jan. 23.

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*Observations of the Partial Solar Eclipse, 1882, November 10.*  
By John Tebbutt.

The weather was all that could be desired for the observation of this phenomenon, and the contacts were pretty well observed as follows :—

		d	h	m	
First contact	...	Nov. 10,	19	16	21.2
Last contact	...	10,	21	47	57.2
					} Local mean time.

The instrument employed was the  $4\frac{1}{2}$ -inch Equatorial with the full aperture and a negative eyepiece magnifying 120 diameters, in combination with a diagonal prism and the necessary coloured shade. The instrumental conditions were precisely those under which the last Transit of *Mercury* was observed here. The definition was very fair, and the solar cusps were sharp throughout. The irregularities of the Moon's limb were also well seen, but I could not detect any portion of the limb off the Sun's disk. At 20<sup>h</sup> 12<sup>m</sup> 57<sup>s</sup>.5 the Moon's limb made first contact with a roundish-black spot, and the last contact at total emersion was observed at 21<sup>h</sup> 7<sup>m</sup> 24<sup>s</sup>.8. In addition to this isolated spot there was a large group of spots on the Sun's disk, and so conspicuous, indeed, was this group that it could be readily seen with a coloured glass without a telescope. One of the most interesting phenomena in connection with the eclipse was the behaviour of two black-bulb thermometers suspended vertically in free sunshine, and read off as far as practicable at intervals of five minutes. One of the instruments was *in vacuo* and the other in a glass globe containing air. The following table exhibits the variations of the readings :—

Mean Time. h m	Thermometer		Mean Time. h m	Thermometer	
	in Vacuo.	in Air.		in Vacuo.	in Air.
18 35	91.7	78.8	20 20	99.5	89.0
18 40	98.0	82.6	20 25	98.8	88.7
18 45	101.8	85.2	20 30	98.5	88.5
18 50	104.2	87.2	20 35	98.5	88.5
18 55	106.4	89.0	20 40	98.8	88.7
19 0	107.8	90.0	20 45	99.6	89.3
19 5	109.5	91.9	20 50	101.3	90.6
19 20	112.2	95.0	20 55	102.5	91.7
19 25	112.8	95.5	21 0	104.5	93.3
19 30	112.5	95.2	21 5	106.0	94.3
19 35	111.8	95.2	21 10	108.3	95.8
19 40	111.3	95.2	21 16	110.5	97.5
19 45	109.8	94.4	21 20	112.0	98.5
19 50	108.5	94.0	21 25	113.8	99.7
19 55	106.5	92.8	21 30	115.7	101.2
20 0	104.5	91.7	21 35	117.2	101.8
20 5	103.3	91.0	21 40	118.4	102.7
20 10	101.8	90.5	21 50	120.7	104.2
20 15	100.5	89.7	21 56	121.4	105.0

As the atmosphere was calm and the Sun unclouded during the forenoon, these readings afford a good representation of the heating effect of the Sun's rays. It will be seen that the minimum readings occurred nearly simultaneously with the greatest phase of the eclipse.

*Windsor, N. S. Wales:*  
1882, Nov. 20.

*Occultations of Stars by the Moon observed at Stonyhurst in 1882.*  
By the Rev. S. J. Perry, F.R.S.

1882.	Phenomena.	Limb.	G.M.T. h m s	Remarks.
Sept. 5	Disapp. of 68 Orionis	Bright	12 5 46.5	Sky perfectly clear.
	Reapp. „	Dark	12 47 43.8	„
21	Disapp. of B.A.C. 6536	Dark	7 46 45.0	Definition very good.
	Reapp. „	Bright	9 1 41.0	„
Nov. 26	Disapp. of $\chi^3$ Orionis	Bright	10 32 30.8	Excellent observa- tion.
	Reapp. „	Dark	11 37 10.3	

The observer throughout was Mr. J. Rooney.